

CLAIMS

1. Configuration (100) comprising an active optical component (20) that is electrically connected to a flexible electronic board (10), the active optical component being designed to be aligned with an optical system, characterized in that the electronic board is a flexible circuit with a high density of interconnections, called a HDI flexible circuit, with an upper longitudinal surface (10a) that comprises a metallic brazing sector (6) in contact with a microwave transmission path (3) of the HDI flexible circuit, and [also characterized] in that the active optical component on one of its surfaces (20a), i.e. the contact surface, comprises a metallic contact sector (21) that coincides directly with the metallic brazing sector by turning said active optical component over onto the HDI flexible circuit.
2. Configuration (100) as claimed in claim 1, characterized in that the metallic brazing sector (6) comprises a network of metallic brazing contact studs (61, 62) with a diameter of roughly 30 µm.
3. Configuration (100) as claimed in claim 2, characterized in that the upper longitudinal surface (10a) of the HDI flexible circuit (10) comprises a zone of electrical insulation (51) in an essentially annular configuration around one of the ends of the microwave transmission path (3) and extending through a flared electrical insulation zone (52), and [also characterized] in that one of said metallic brazing contact studs, i.e. the central contact (61), is located on said end and the other metallic brazing contact studs (62) are distributed essentially in a semi-circle or circles on a ground conductive zone (4) in the vicinity of the side of said annular electrical insulation zone.
4. Configuration (100) as claimed in claim 3, characterized in that the flared electrical insulation zone (52) ends in a narrowed electrical insulation zone (53).

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5. Configuration (100) as claimed in one of claims 1 to 4, characterized in that the active optical component can be chosen from among a photodiode (20) that is able to receive modulated optical signal by the longitudinal surface (20b), i.e. the receiving surface, parallel to the contact surface (20a), and a laser that is able to supply modulated optical signals by the longitudinal surface, i.e. the transmission surface, parallel to the contact surface.
6. Configuration (100) as claimed in one of claims 1 to 5, characterized in that the upper longitudinal surface (10a) of the HDI flexible circuit (10) comprises another metallic brazing sector (7), said other sector being in contact with one end of the microwave transmission path (3) and with another microwave transmission path (3') of the HDI flexible circuit (10), and [also characterized] in that it comprises an active electronic component (50) that has, on one of its surfaces, i.e. the contact surface (50a), a metallic contact sector that coincides directly with said other metallic brazing sector by turning the active electronic component over onto the HDI flexible circuit.
7. Optoelectronic device (300) that is equipped with a box (60) characterized in that it comprises the configuration (100) as claimed in one of claims 1 to 6 and an optical system (30) aligned with the active optical component (20), the configuration and the optical system being kept in the box.
8. Optoelectronic device (300) as claimed in claim 7, characterized in that when the active optical component (20) is chosen from among said photodiode and said laser, the HDI flexible circuit (10) is bent and the upper longitudinal surface (10a) comprises a first part, with respect to the bottom of the box (61) extended by a second part containing said brazing sector (6) with respect to one of the lateral transverse surfaces (62) of the box.
9. Optoelectronic device (300) as claimed in claim 8, characterized in that the receiving surface (20b) of the active optical component (20) is attached by an optically transparent adhesive (40) to one end of an optical fiber (30) integral with said lateral transverse surface (62) of the box.
10. Process of manufacture of a configuration (100) as claimed in one of claims 1 to 6,

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characterized in that it comprises the following stages:

- the stage of formation of the metallic brazing sector (6) of the HDI flexible circuit (10) by physical vapor phase deposition,
- the stage of formation of the metallic contact sector (21) of the active optical component (20),
- the stage of installation of the active optical component (20) on the HDI flexible circuit by turning it over and brazing.

11. Process of manufacture of a configuration (100) as claimed in claim 10, characterized in that it comprises the following stages

- the stage of formation of another metallic brazing sector (7) of the HDI flexible circuit (10) by physical vapor phase deposition,
  - the stage of formation of the metallic contact sector of the active electronic component (50),
    - the stage of installation of the active electronic component on the HDI flexible circuit by turning it over and brazing.

12. Process of manufacture of an optoelectronic device (300) as claimed in one of claims 8 or 9, characterized in that it comprises the stages of manufacture of a configuration (100) as claimed in one of claims 10 or 11 and [also characterized] in that it comprises a stage of supporting the configuration and the optical system in said box including the bending of the HDI flexible circuit (10).

13. Process of manufacture of an optoelectronic device (300) as claimed in claim 12, characterized in that the optical system comprises an optical fiber (30), wherein the stage of supporting the configuration and the optical fiber in the box includes the following:

- bonding the optical fiber in one of the lateral transverse surfaces (62) and bonding the active electronic component (50) in the bottom of the box (61),
- soldering the end of the HDI flexible circuit (10) to one interconnection located at the level of the other of the lateral transverse surfaces of the box (63).

[see original for 6 figures on the following five pages]